SERVICE MANUAL

Order No. Ref1405S005V0

Chest Freezer

MODEL: IF50CM23NW
IF71CM33NW

⚠WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It dose not contain warnings and cautions to advice non-technical individuals of potential dangers in attempting to service a product. Product powered by electricity should by serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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Chapter 1 General Information

1-1. General Guidelines

When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

1) Leakage Current Cold Check
2) Leakage Current Hot Check
3) Prevention of Electro Static Discharge (ESD) to Electrostatic Sensitive

1-2. Insulation Test

1. Check if there is any leak of current.
2. Cut out the power supply before the repair to avoid an electrical shock hazard.
3. In the case of a live-line test, insulating gloves should be worn to avoid potential electrical shock.
4. Confirm the rated current, voltage and capacity before testing with any kinds of instruments.
5. Watch if the upper door is open when we check something at a lower position.
6. Take out every part in the cabinet before moving the machine, especially things like panels (e.g. glass shelf).
7. Please wear intact cotton gloves when repair any parts of the evaporator, so that scratches by the sharp fins can be avoided.
8. If there is a breakdown with the refrigeration system, please surrender the machine to the service center, else the leaked refrigerant may pollute the atmosphere.
9. The refrigerator use AC of 115V with a frequency of 60Hz.
10. A big fluctuation of voltage (exceed the range 98～126V) may cause a start failure of the refrigerator, a burn-out of the control panel and compressor, or an abnormal sound from the compressor in operation.
11. Take care not to damage the supply line. Don’t yank at the line; pull the plug out gently from the receptacle. Don’t press the line under the cabinet or step on it. Take care not to roll on or damage the supply line when moves the machine from the wall.
12. In the case of leakage of inflammable gases like carbon monoxide, open the door and windows. Don’t pull out or insert the plugs of the appliance.

13. Don't touch the refrigeration surface of the freezing compartment when the refrigerator is in operation, especially when our hand is wet, else we may be glued to the surface.
14. Pull out the plug of power supply during clearance or power outage. Wait at least five minutes to resume the power supply in order to prevent damage to the compressor caused by continuous restart.

Photo used in this manual

The illustration and photos used in this Manual may not base on the final design of products, which may differ from the products in some way.

1-3. How to read this Service Manual

Icons are used to attract the attention of the reader to specific information. The meaning of each icon is described in the table below:

Note:
A "note" provides information that is not indispensable.

Caution:
A "caution" is used when there is danger that the reader, through incorrect manipulation, may damage equipment, loose data, get an unexpected result or has to restart (part of) a procedure.

Warning:
A "warning" is used when there is danger of personal injury.

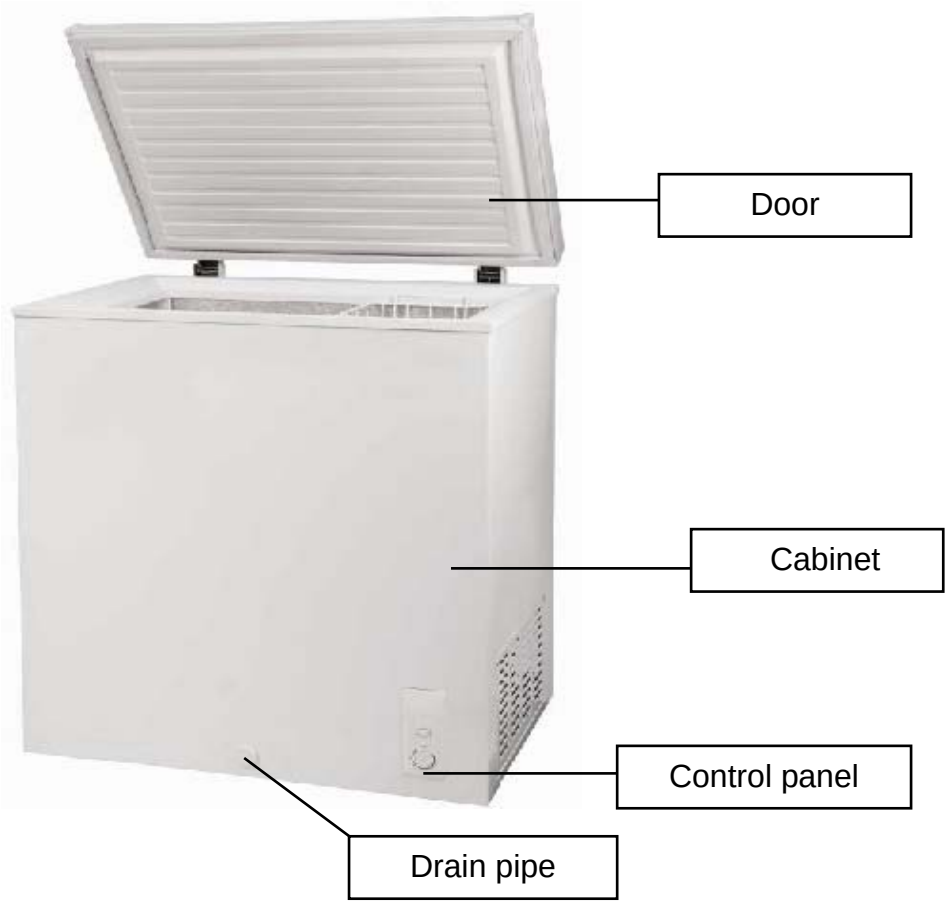
Reference:
A "reference" guides to find additional information on a specific topic.

Chapter 2 Product Feature

2-1. Specification

1.	Type Model	/	IF50CM23NW	IF71CM33NW
	Product description	/	Chest Freezer	Chest Freezer
	Type of appliance (FS=free standing /BI= built-in)	/	FS	FS
	Climate class (N=16-32℃ ST=18-38℃ T=18-43℃)	/	N	N
2.	Key index	/	/	/
	Gross capacity	l	142	198
	Total net capacity	l	142	198
	Defrosting (Manual-Automatic)	/	Manual	Manual
	Kind of coolant (R134a/R600a)	/	R600a	R600a
	Foaming components (R141b/C-P)	/	C-P	C-P
3.	Technical data	/	/	/
	Voltage / frequency/Compressor brand	V/Hz	115V/60Hz	115V/60Hz
	Input power / currency	W/A	1.69A	1.70A
	Lowest Temperature	°C	≤-18°C	≤-18°C
	Energy consumption (EN153) per year	kWh/year	216kW • h/year	248kW • h/year
	Cooling system:(K=Compressor / A=Absorbtion)	/	K	K
4.	Product net dimensions	/	/	/
	Unit dimensions *(H / W / D)*	cm	84.5/72/55	84.5/94/55
	Net weight	kg	33	38
5.	Packing dimensions & loadability	/	/	/
	Packing dimensions *(H / W / D)*	cm	89.0/77.5/58.0	89.0/99.5/58.0
	Gross weight	kg	36	36

2-2. External views



Chapter 3 Installation, adjustments and maintenance

3-1. Installation

The freezer should be conveniently located for day-to-day use in a dry well-ventilated room.
Do not install the freezer where the temperature will go below 0°F or above 110°F, because it will not maintain proper temperatures.
Be sure to install the freezer on a floor strong enough to support it when it is fully loaded.
The freezer must be solidly positioned on the floor if it is to function at its best. Shims may be used to accomplish this wherever the floor is too uneven. If the place selected for the freezer is damp or moist, place 2 X 4 s (51 mm X 102 mm) under its entire length to assure adequate support.

If the freezer has been inclined more then 45° position, we need wait 24 hours before restarting the freezer.

3-2 Defrosting and Draining

In most climates, defrosting will be necessary only about twice a year.
To have the freezer operate most efficiently, do not permit more than 1/2” (13 mm) of frost to accumulate on the shelves.
To remove frost, scrape with a plastic or wood spatula or scraper.
Do not use an ice pick or sharp-edged instrument as it may damage or scratch the freezer.

Do not use any electrical device in defrosting the freezer.

For Complete Defrosting

1. Turn the temperature control to the *OFF* position and unplug the freezer.
2. Remove all food and place it in corrugated boxes, insulated bags, picnic coolers, etc. Use towels and newspapers for insulation as needed.
3. With the door/lid open, use pans of hot water to speed loosening of frost. Remove large pieces before they melt.

Chest models have a defrost water drain at the front.

4. Sponge excess water from the bottom of the freezer as it collects to prevent over flowing.
5. After defrosting, clean the inside of the freezer.
6. Replace the drain plug inside the cabinet and the cap on the defrost drain. Fold over and dry the gasket on the hinge side of the lid.
7. Plug in the freezer. Return the temperature control to its previous position and return food to the

freezer.

Water may drip from the back flange of the lid cover during defrosting. This is normal. Ice builds up in the lid insulation when the lid is open for adding or removing food, and melts during the defrosting operation.

3-3 Cleaning the Freezer

Outside. Protect the paint finish. The finish on the outside of the freezer is a high quality baked-on paint finish. With proper care, it will stay new-looking and rust-free for years. Apply a coat of appliance polish wax when the freezer is new and then at least twice a year. Appliance polish wax also works well to remove tape residue from freezer surfaces.

Keep the finish clean. Wipe with a clean cloth lightly dampened with appliance polish wax or mild liquid dishwashing detergent. Dry and polish with a clean, soft cloth. Do not wipe the freezer with a soiled dishwashing cloth or wet towel. Do not use scouring pads, powdered cleaners, bleach, or cleaners containing bleach.

Inside. Clean the inside of the freezer at least once a year. We recommend that the freezer be unplugged before cleaning. If this is not practical, wring excess moisture out of sponge or cloth when cleaning in the vicinity of switches, lights or controls.

Use warm water and baking soda solution-about a tablespoon of baking soda to a quart of water. Rinse thoroughly with water and wipe dry. Do not use cleaning powders or other abrasive cleaners.

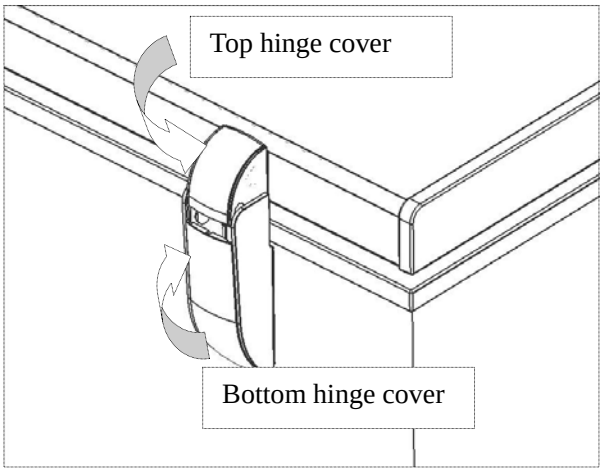
An open box of baking soda in the freezer will absorb stale freezer odors. Change the box ever y three months.

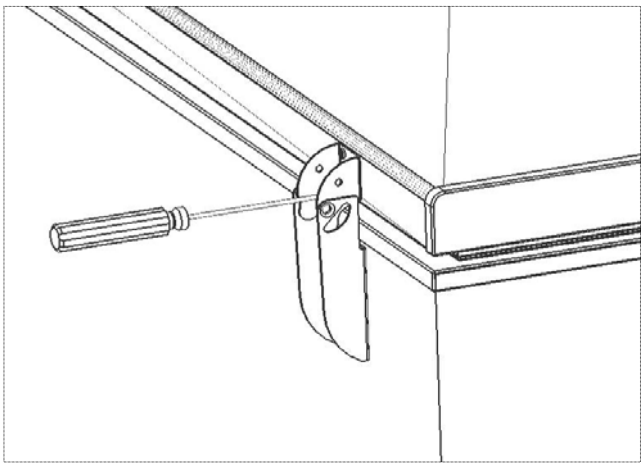
Care should be taken in moving the freezer away from the wall. All types of floor coverings can be damaged particularly cushioned coverings and those with embossed surfaces.

Chapter 4 Disassembly

4-1. Door assembly (Door, hinge, hinge cover)

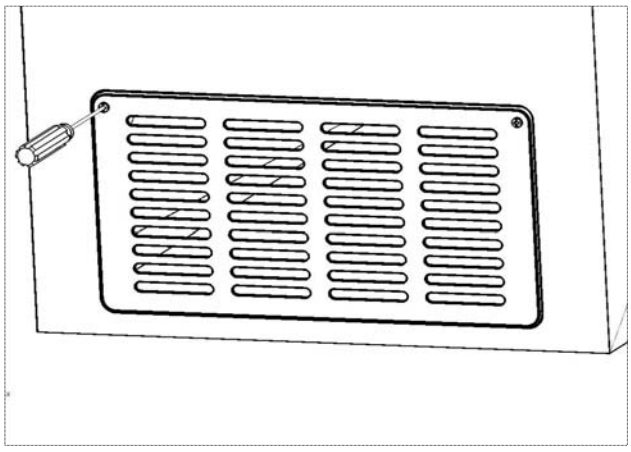
Unscrew the hinge cover screw with screwdriver, take away the top and bottom cover by pull it, and then unscrew the screws on the hinge, so the whole hinge could be moved.





4-2. Compartment grill assembly

Unscrew the two screw of grill; we can take away the grill.



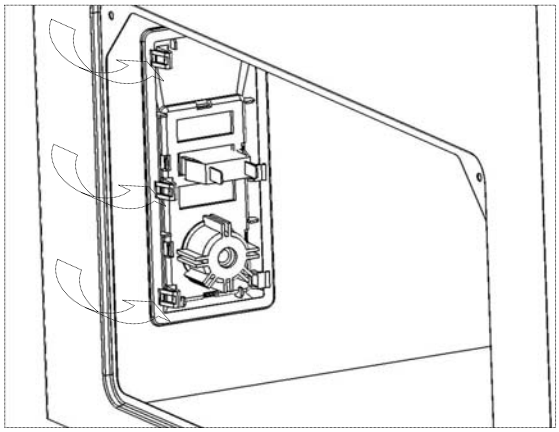
4-3. Control panel assembly (Panel, cover board, knob, indicator light)

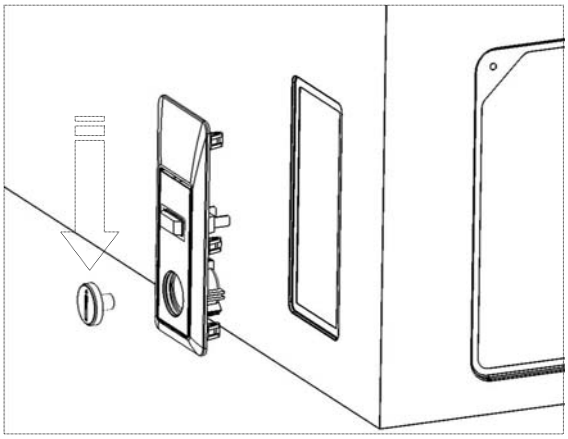
Unscrew the compartment grill (refer 4-2), push the panel claw gently with our finger or tools, at the same time pull panel outside then take away it.

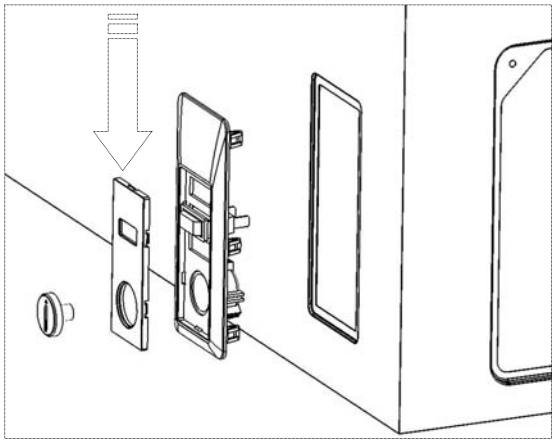
Take away the knob with a sharp-edged tool.

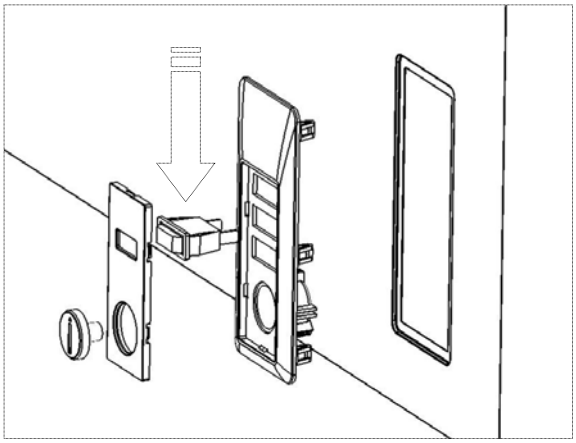
Press the cover board and take it away.

Press two claws on indicator light side and push it from back to front.





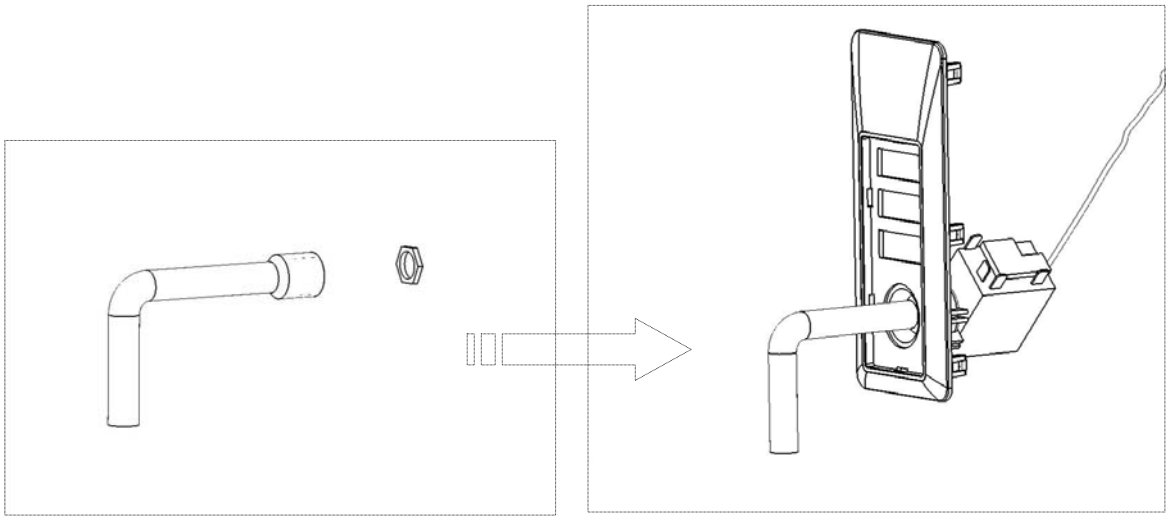




4-4. Thermostat assembly

First take off the knob (refer 4-3), Use turnbuckle spanner or acutilingual plier unscrew the turnbuckle, and then thermostat can be moved from back of panel.

Note: When assembly thermostat we should placed thermostat in originally direction.



Chapter 5 Control and display system

5-1. Control panel

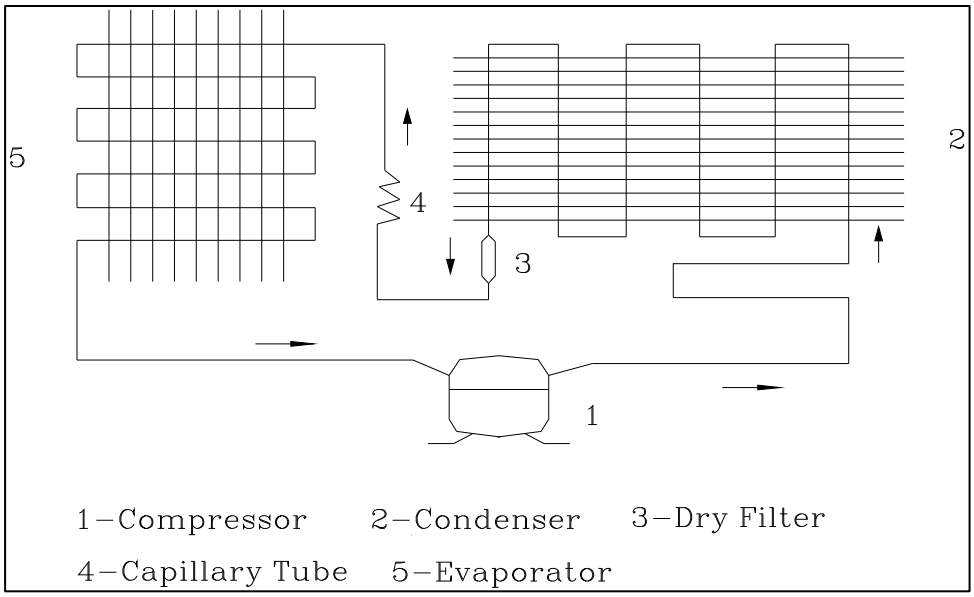
Freezing temperature selection is made by setting the control from ***1***to ***7***(coldest).
If we want colder or warmer temperatures, adjust the control one step at a time.
Allow several hours after each one-step adjustment for the freezer temperature to stabilize.

5-2. Starting the Freezer

1. Clean the inside of the freezer with a mild solution of baking soda and water
2. Connect cord to power outlet.
3. On models with a Temperature Monitor or High-Temp Alarm Switch, set the switch to the Min position.
4. Make sure the temperature control is set at 4.
5. Allow freezer to operate for at least four hours before placing food inside.
6. On models with a Temperature Monitor or High-Temp Alarm Switch, set the switch to the *ON* position.

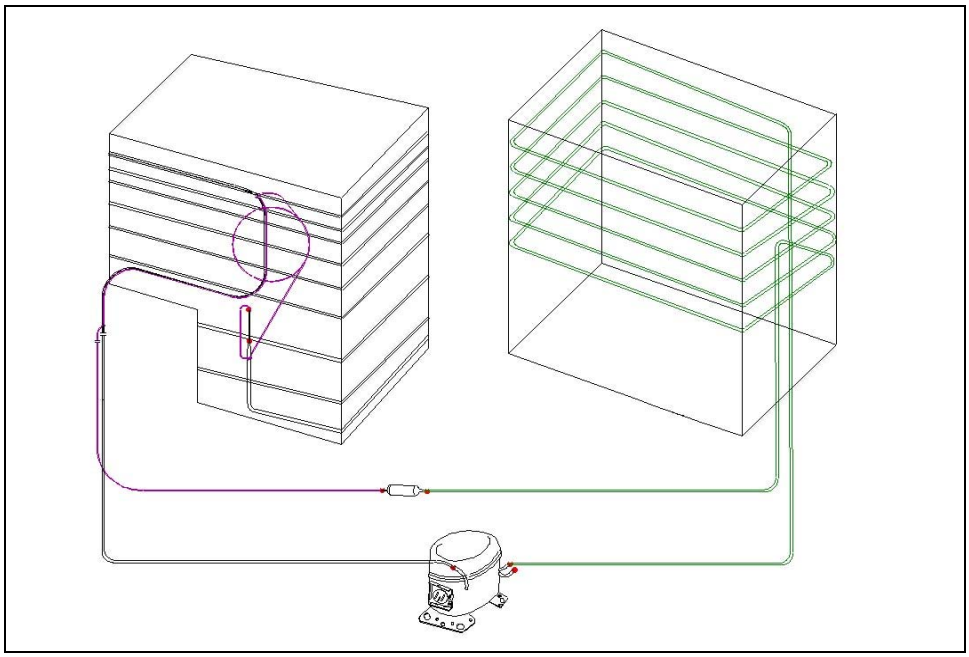
Chapter 6 System flow principle

6-1. Refrigeration flow chart



The refrigeration system of direct cooling single-system cooler belongs to the category of a single-temperature and single-control refrigerating system with one evaporators and is controlled by a single temperature control.

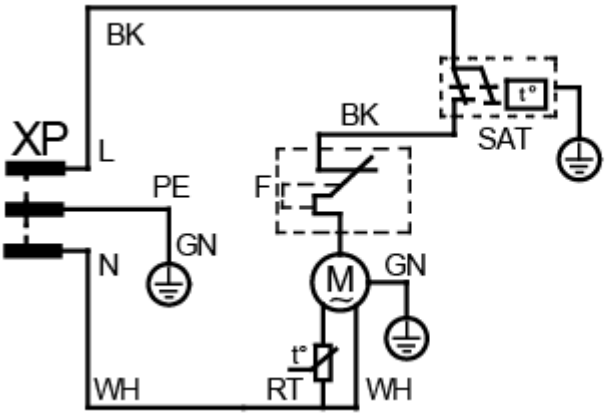
6-2. Refrigeration flow scenograph



Chapter 7 Circuit diagram

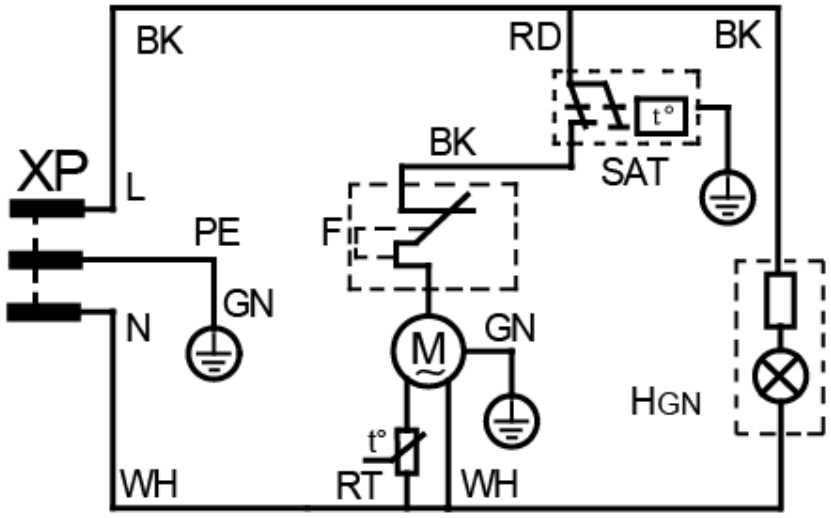
7-1. Brief principle diagram

HF50CM23NW



WH-White BK-Black
GN-Green
XP-Power Plug
SAT-Thermostat
F-Motor Protector
M-Compressor
RT-Starting Relay

HF71CM33NW



WH-White BK-Black
GN-Green RD-Red
XP-Power Plug
SAT-Thermostat
F-Motor Protector
M-Compressor
RT-Starting Relay
HGN-Green lamp

Chapter 8 Trouble shooting

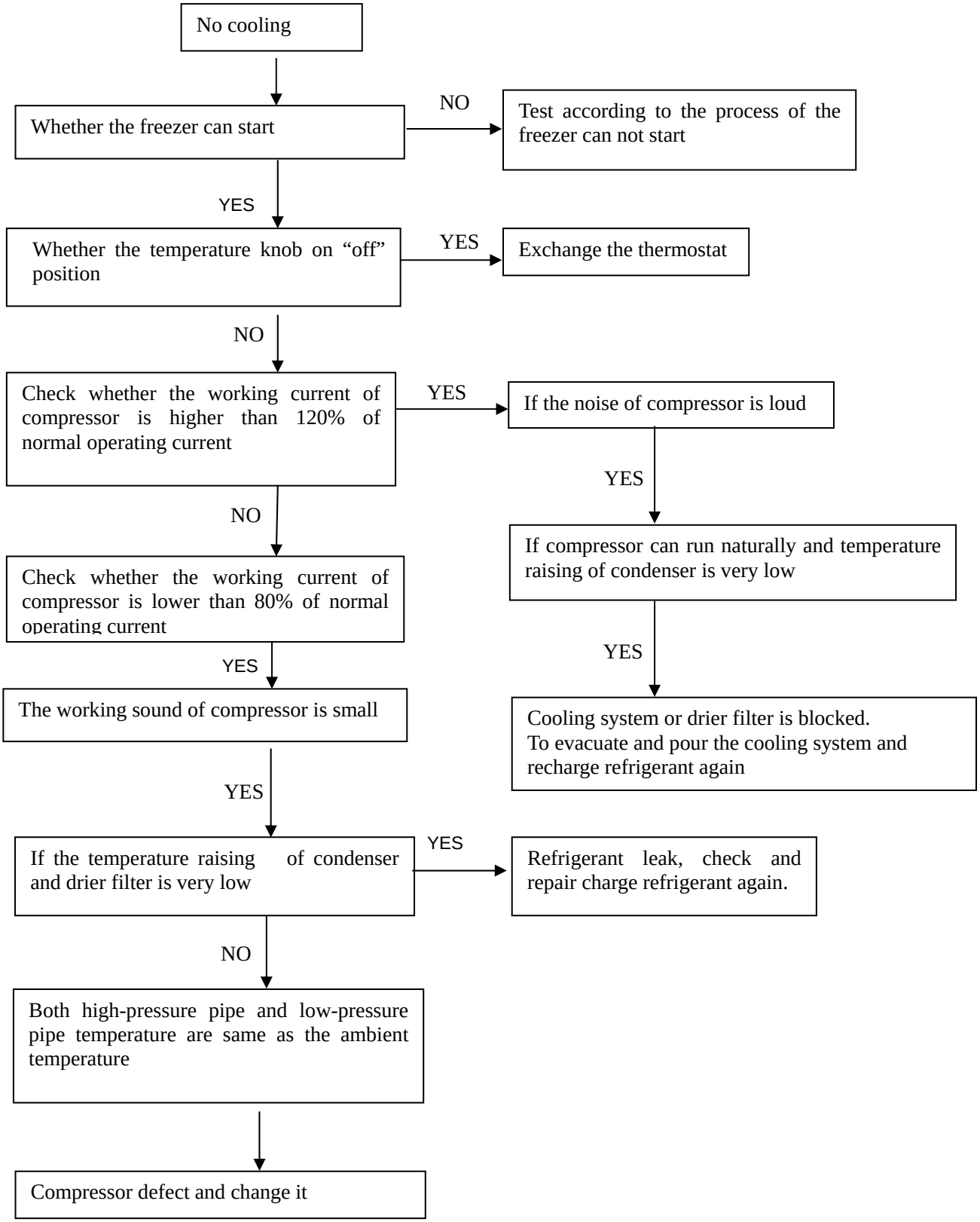
8-1. Normal phenomena

Problem	Possible Causes	What To Do
Freezer does not operate or Power-On Light is not on	Temperature control in OFF or Min or 0 position.	Move the control to a temperature setting.
	Freezer is unplugged.	Push the plug completely into the outlet.
	The fuse is blown/circuit breaker is tripped.	Replace fuse or reset the breaker
Freezer starts/stops too frequently	Door/lid left open.	Check to see if package is holding door/lid open.
	Too frequent or too long to door/lid openings.	
	Temperature control set too cold.	See About the operation of the freezer
Freezer operates too long	Door/lid left open.	Check to see if package is holding door/lid open.
	Too frequent or too long door/lid openings.	
	Temperature control set too cold.	See About the operation of the freezer
	Inadequate air circulation space around cabinet.	See Preparing to install the freezer
	Fast Freeze switch is in the ON position (on some models)	See About the operation of the freezer
Noisy operation or cabinet vibrates	Floor may be weak, causing freezer to vibrate when compressor is on.	Placing 2 X 4s (51 mm X 102 mm) under the length of the freezer will help support it and may reduce vibration.
	Cabinet is not positioned solidly on floor	See Preparing to install the freezer Or use shims for uneven floor
Freezer temperature too warm	Door/lid left open.	Check to see if package is holding door/lid open.
	Too frequent or too long door/lid openings.	
Foods defrosting	Temperature control OFF or Min or 0 positions.	Move the control to a temperature setting.
	Freezer is unplugged.	Push the plug completely into the outlet.

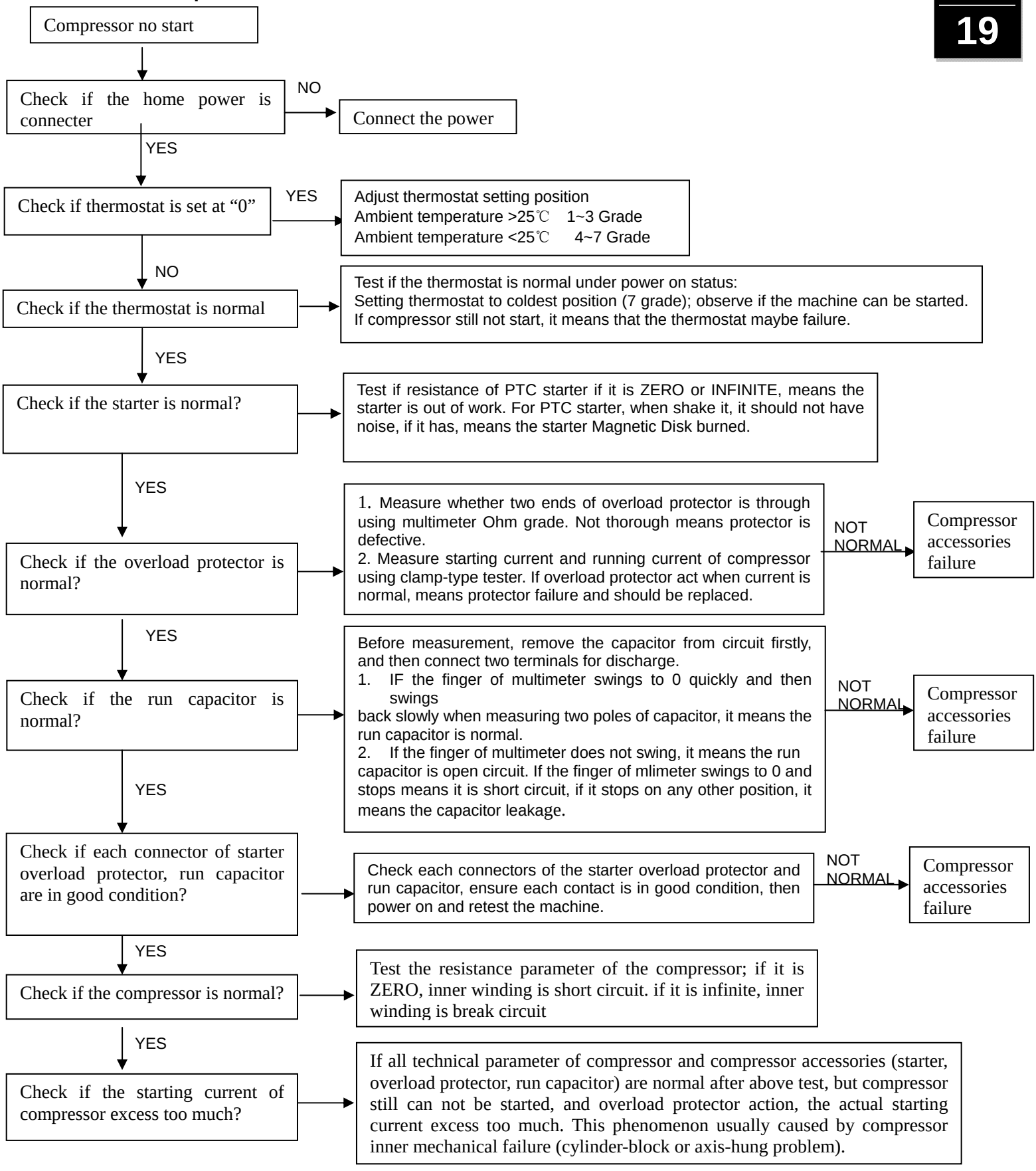
	The fuse is blown/circuit breaker is tripped.	Replace fuse or reset the breaker
	Door/lid left open.	Check to see if package is holding door/lid open.
	Too frequent or too long door/lid openings.	
Freezer temperature too cold	Temperature control set too cold.	See About the operation of the freezer
	Fast Freeze switch is in the ON position or has run for too long (on some models)	About the operation of the freezer
Moisture forms on outside of cabinet	Not unusual during periods of high humidity	Wipe surface dr
Interior light does not work (on some models)	No power at outlet.	Replace fuse or reset the breaker
	Freezer is unplugged.	Push the plug completely into the outlet.
	Light bulb burned out.	Replace bulb.
Door/lid wont fully close by itself	Package holding door/lid open.	
Slow starting time after being off	Built-in overload product.	
Excessive frost build-up	Door/lid left open.	Check to see if package is holding door/lid open.
	Too frequent or too long door/lid openings.	
	Not unusual during periods of high humidity	

8-2. Abnormal phenomena

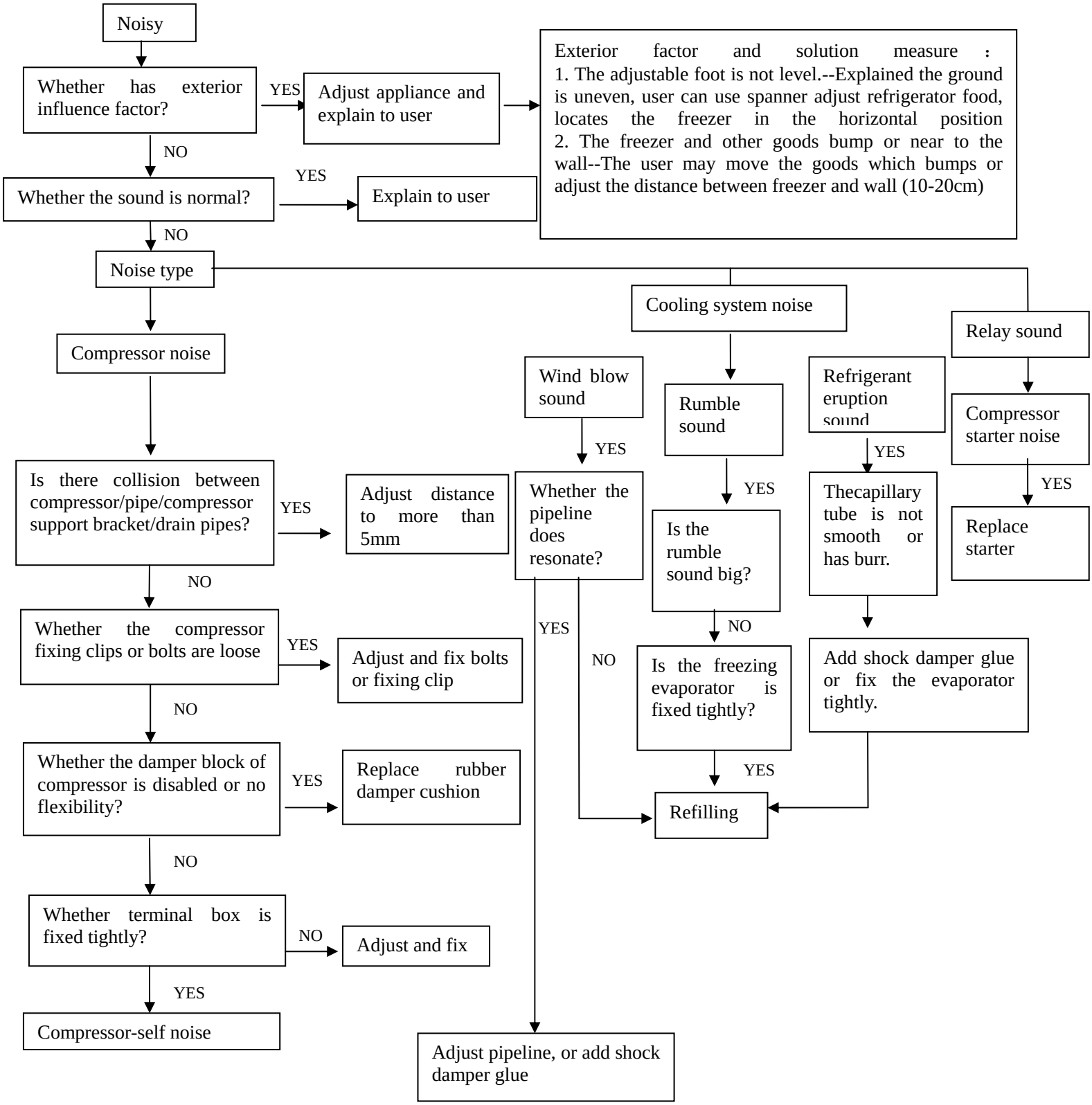
8-2-1. No cooling


No cooling
Whether the freezer can start
NO
Test according to the process of the freezer can not start
YES
Whether the temperature knob on "off" position
YES
Exchange the thermostat
NO
Check whether the working current of compressor is higher than 120% of normal operating current
YES
If the noise of compressor is loud
YES
If compressor can run naturally and temperature raising of condenser is very low
YES
Cooling system or drier filter is blocked.
To evacuate and pour the cooling system and recharge refrigerant again
NO
Check whether the working current of compressor is lower than 80% of normal operating current
YES
The working sound of compressor is small
YES
If the temperature raising of condenser and drier filter is very low
YES
Refrigerant leak, check and repair charge refrigerant again.
NO
Both high-pressure pipe and low-pressure pipe temperature are same as the ambient temperature
Compressor defect and change it

8-2-2.Compressor no start


Compressor no start
Check if the home power is connecter
NO
Connect the power
YES
Check if thermostat is set at “0”
YES
Adjust thermostat setting position
Ambient temperature >25℃ 1~3 Grade
Ambient temperature <25℃ 4~7 Grade
NO
Check if the thermostat is normal
Test if the thermostat is normal under power on status:
Setting thermostat to coldest position (7 grade); observe if the machine can be started.
If compressor still not start, it means that the thermostat maybe failure.
YES
Check if the starter is normal?
Test if resistance of PTC starter if it is ZERO or INFINITE, means the starter is out of work. For PTC starter, when shake it, it should not have noise, if it has, means the starter Magnetic Disk burned.
YES
Check if the overload protector is normal?
1. Measure whether two ends of overload protector is through using multimeter Ohm grade. Not thorough means protector is defective.
2. Measure starting current and running current of compressor using clamp-type tester. If overload protector act when current is normal, means protector failure and should be replaced.
NOT NORMAL
Compressor accessories failure
YES
Check if the run capacitor is normal?
Before measurement, remove the capacitor from circuit firstly, and then connect two terminals for discharge.
1. IF the finger of multimeter swings to 0 quickly and then swings
back slowly when measuring two poles of capacitor, it means the run capacitor is normal.
2. If the finger of multimeter does not swing, it means the run capacitor is open circuit. If the finger of mlimeter swings to 0 and stops means it is short circuit, if it stops on any other position, it means the capacitor leakage.
NOT NORMAL
Compressor accessories failure
YES
Check if each connector of starter overload protector, run capacitor are in good condition?
Check each connectors of the starter overload protector and run capacitor, ensure each contact is in good condition, then power on and retest the machine.
NOT NORMAL
Compressor accessories failure
YES
Check if the compressor is normal?
Test the resistance parameter of the compressor; if it is ZERO, inner winding is short circuit. if it is infinite, inner winding is break circuit
YES
Check if the starting current of compressor excess too much?
If all technical parameter of compressor and compressor accessories (starter, overload protector, run capacitor) are normal after above test, but compressor still can not be started, and overload protector action, the actual starting current excess too much. This phenomenon usually caused by compressor inner mechanical failure (cylinder-block or axis-hung problem).

8-2-3 .Noisy


Noisy
Whether has exterior influence factor?
YES
Adjust appliance and explain to user
Exterior factor and solution measure :
1. The adjustable foot is not level.--Explained the ground is uneven, user can use spanner adjust refrigerator food, locates the freezer in the horizontal position
2. The freezer and other goods bump or near to the wall--The user may move the goods which bumps or adjust the distance between freezer and wall (10-20cm)
NO
Whether the sound is normal?
YES
Explain to user
NO
Noise type
Compressor noise
Cooling system noise
Relay sound
Wind blow sound
Rumble sound
Refrigerant eruption sound
Compressor starter noise
Is there collision between compressor/pipe/compressor support bracket/drain pipes?
YES
Adjust distance to more than 5mm
NO
Whether the pipeline does resonate?
YES
Is the rumble sound big?
YES
Thecapillary tube is not smooth or has burr.
YES
Replace starter
YES
NO
Whether the compressor fixing clips or bolts are loose
YES
Adjust and fix bolts or fixing clip
NO
Is the freezing evaporator is fixed tightly?
NO
Add shock damper glue or fix the evaporator tightly.
YES
Whether the damper block of compressor is disabled or no flexibility?
YES
Replace rubber damper cushion
NO
Refilling
Whether terminal box is fixed tightly?
NO
Adjust and fix
YES
Compressor-self noise
Adjust pipeline, or add shock damper glue